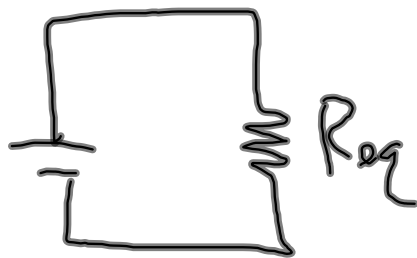
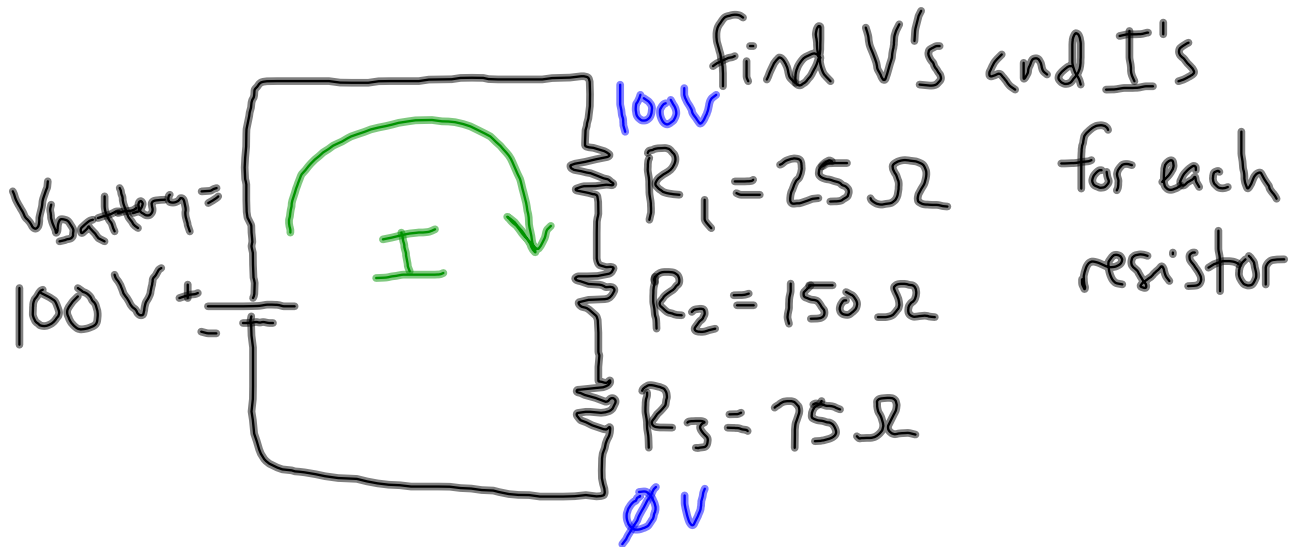


Circuit Practice:

$$R_{\text{eq}} = R_1 + R_2 + R_3 = 250\ \Omega$$

$$I_{\text{total}} = \frac{V_{\text{battery}}}{R_{\text{eq}}} = \frac{100\text{ V}}{250\ \Omega} = 0.4\text{ A}$$

$$V_1 = I_{\text{total}} R_1 = 10\text{ V} \quad I_1 = 0.4\text{ A}$$

$$V_2 = I_{\text{total}} R_2 = 60\text{ V} \quad I_2 = 0.4\text{ A}$$

$$V_3 = I_{\text{total}} R_3 = 30\text{ V} \quad I_3 = 0.4\text{ A}$$

Steps:

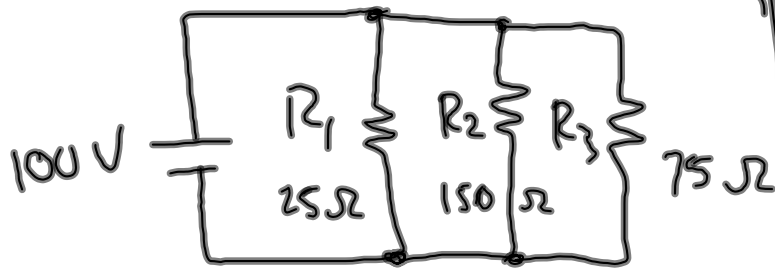
1. Find equivalent resistance of circuit.

2. Calculate total current from

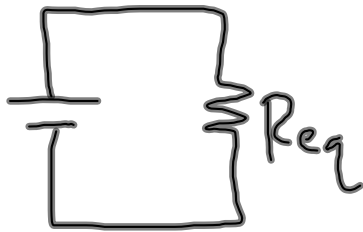
$$I_{\text{total}} = \frac{V_{\text{battery}}}{R_{\text{eq}}} .$$

3. Work backwards to

find individual voltage drops and currents.



find  $I$ 's and  
 $V$ 's for all  
resistors



$$\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

$$R_{eq} = 16.67 \Omega$$

$$\left( \left( \frac{1}{25} \right) + \left( \frac{1}{150} \right) + \left( \frac{1}{75} \right) \right)^{-1}$$

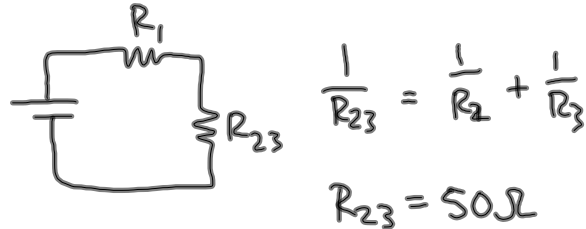
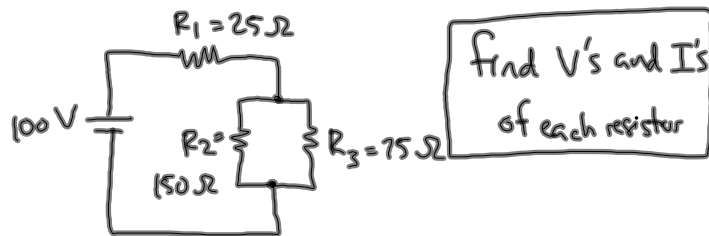
$$I_{total} = \frac{V_{battery}}{R_{eq}} = \frac{100V}{16.67\Omega} = 5.998A$$

$$V_1 = 100V \quad I_1 = \frac{V_1}{R_1} = 4A$$

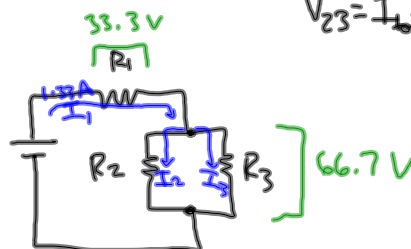
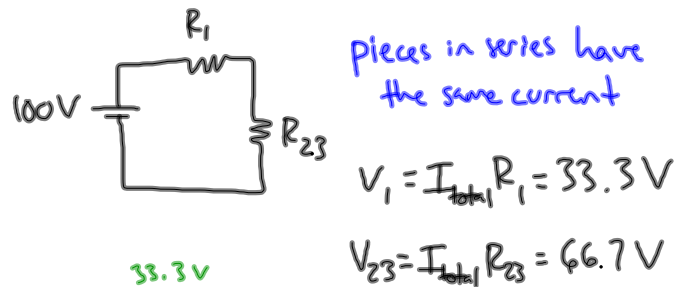
$$V_2 = 100V \quad I_2 = \frac{V_2}{R_2} = 0.67A$$

$$V_3 = 100V \quad I_3 = \frac{V_3}{R_3} = 1.33A$$

# Circuit Practice Problems 5.10.12 CP Physics



$$I_{total} = \frac{V_{battery}}{R_{eq}} = \frac{100V}{75\Omega} = 1.33A$$



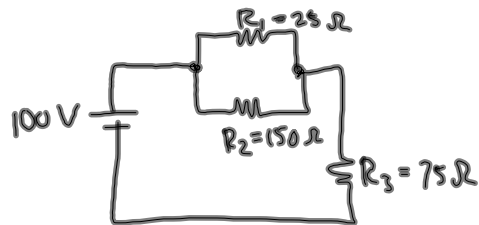
$$I_2 = \frac{V_{23}}{R_2} = 0.445A$$

$$I_3 = \frac{V_{23}}{R_3} = 0.90A$$

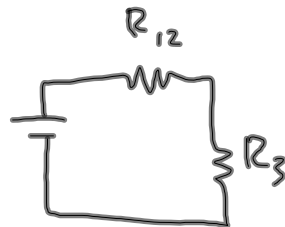
$$V_1 = 33.3V \quad V_2 = 66.7V \quad V_3 = 66.7V$$

$$I_1 = 1.33A \quad I_2 = 0.445A \quad I_3 = 0.90A$$

# Circuit Practice Problems 5.10.12 CP Physics

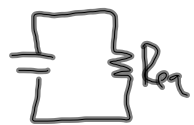


find all V's  
and I's



$$\frac{1}{R_{12}} = \frac{1}{R_1} + \frac{1}{R_2}$$

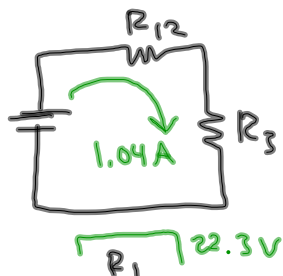
$$R_{12} = 21.4 \Omega$$



$$R_{eq} = R_{12} + R_3$$

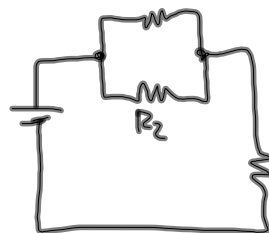
$$= 96.4 \Omega$$

$$I_{total} = \frac{V_{battery}}{R_{eq}} = 1.04 A$$



$$V_{12} = I_{total} R_{12} = 22.3 V$$

$$V_3 = I_{total} R_3 = 78.0 V$$



$$I_1 = \frac{V_{12}}{R_1} = 0.888 A$$

$$I_2 = \frac{V_{12}}{R_2} = 0.148 A$$

$$V_1 = 22.3 V$$

$$V_2 = 22.3 V$$

$$V_3 = 78.0 V$$

$$I_1 = 0.888 A$$

$$I_2 = 0.148 A$$

$$I_3 = 1.04 A$$